COMPUTERNEWS

University of Toronto
Computer Centre
10 King's College Road
TORONTO Ontario
M5S 1A1 Canada

416/928-2066

10012

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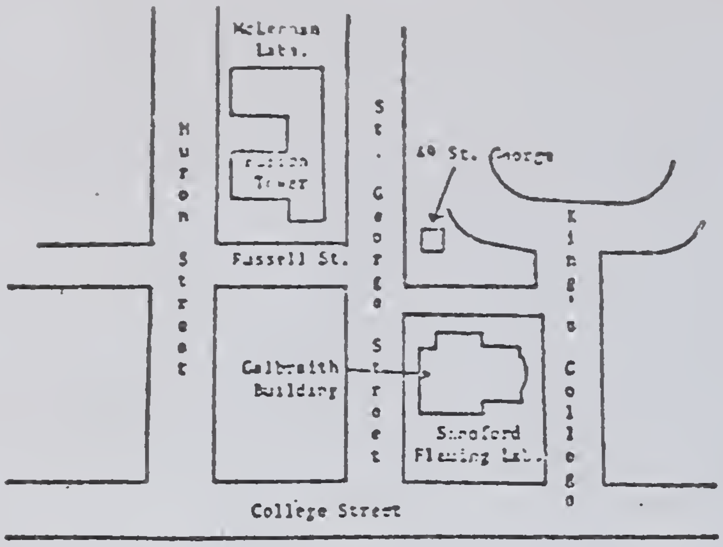
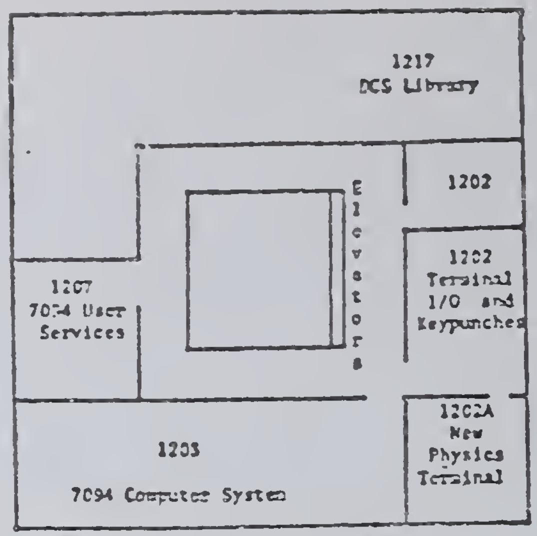
University of Toronto

October 74

ISSN 0315-4661

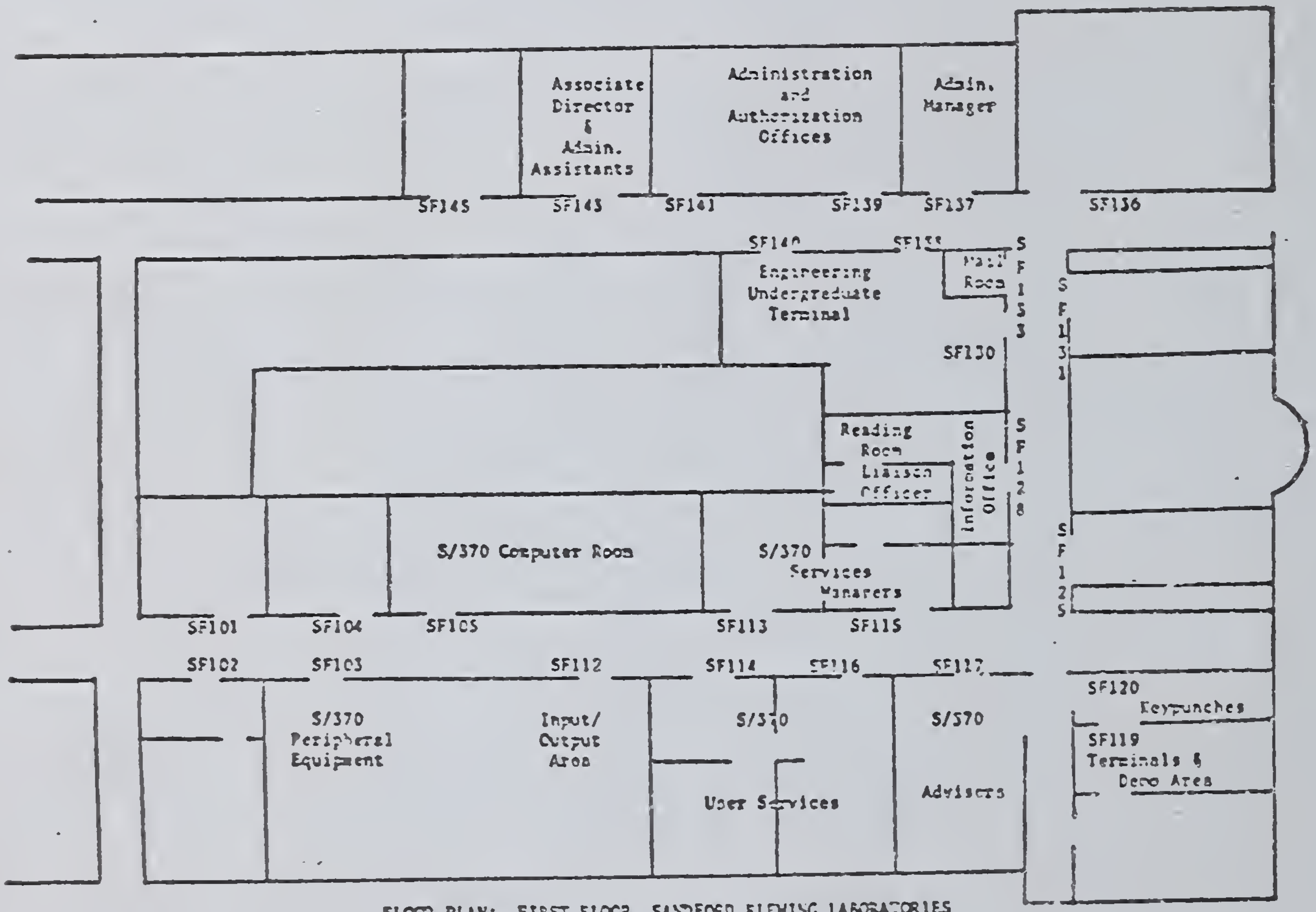
No.117



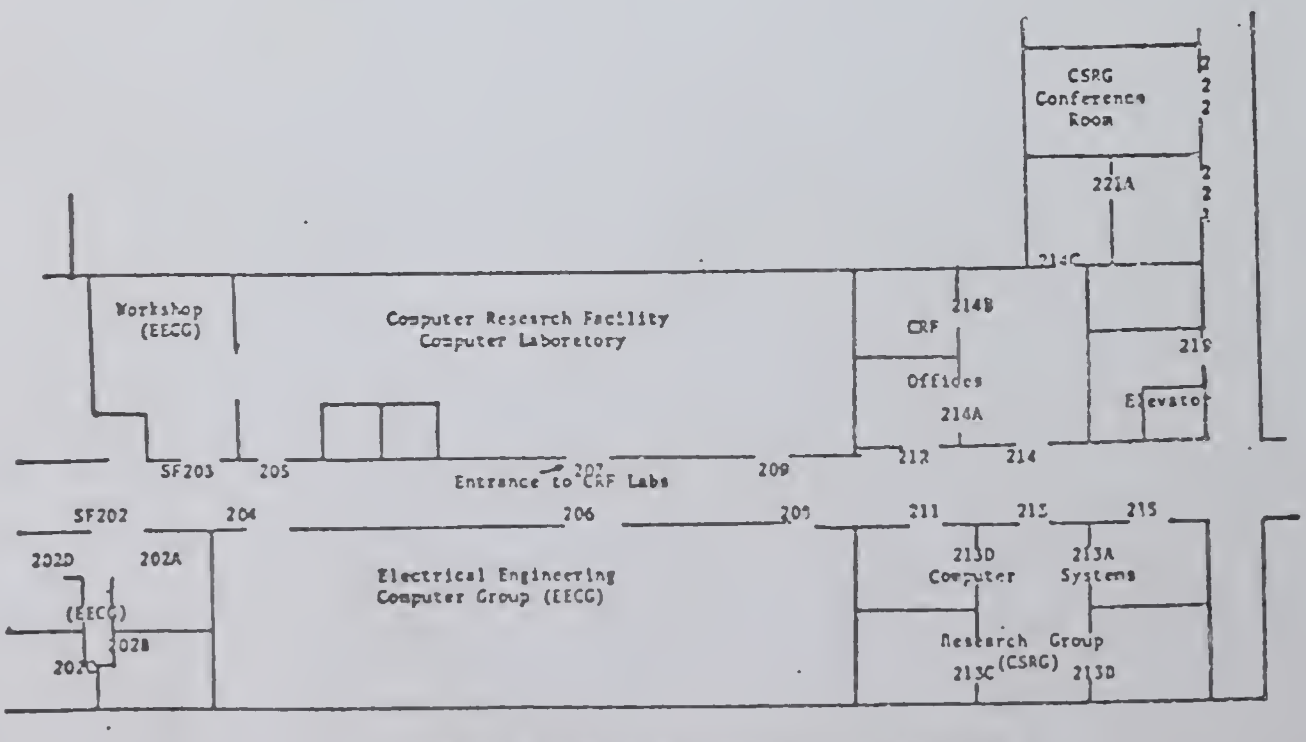


FLOOR PLAN: TWELFTH FLOOR, BURTON TOWER

UNIVERSITY OF TORONTO COMPUTER CENTRE



FLOOR PLAN: FIRST FLOOR, SANDFORD FLEMING LABORATORIES



FLOOR PLAN: SECOND FLOOR, SANDFORD FLEMING LABORATORIES

USERBOOK MODULARITY

Most UTCC users are familiar with USERBOOK, the UTCC User's Reference Manual which provides documentation on the equipment, software and services available on the various computer systems supported by UTCC. USERBOOK is updated on a regular basis and was originally produced in response to a growing demand for a single, official reference document which would provide accurate, reliable information on all aspects of computing at UTCC.

UTCC recognizes that each user has different documentation requirements depending on the particular system resources he wishes to use. For example, a graphics user may require detailed information on the Gould and Calcomp plotting systems but have no need for, or interest in, documentation on the SPSS or BMD application software. Under the restraints of the current USERBOOK update distribution system, in order to receive updates to the sections or chapters of USERBOOK pertaining to his needs, a user must subscribe to, and receive, updates to the entire USERBOOK. As USERBOOK has grown in size, the current updating system has proven inadequate. Subscribers are inundated with a vast amount of unwanted USERBOOK material which they must tolerate in order to receive the updates which they actually require.

In order to provide each user with access to current documentation exclusively related to his particular needs, UTCC is redesigning USERBOOK to be modular in form. The revised USERBOOK will consist of a series of optional documentation modules, each module dealing with a specific aspect of computing. The USERBOOK subscriber may select and receive updates for only those modules relevant to his needs. The modules will be tied together by the numbering system and by combining the modules of his choice, the subscriber can design his own customized USERBOOK.

The USERBOOK conversion project will take place in several stages. Initially, only Section 3, the S/370 Services USERBOOK section will be divided into optional modules. The remaining sections will be modular only in the sense that a subscriber may choose to include, or exclude, an entire section from his copy of USERBOOK.

In early December, 1974, all users holding a registered copy of USERBOOK, i.e. those subscribers who have registered for automatic updates, will receive a letter containing a detailed explanation of how modularity works. The letter will also contain descriptions of the contents of each documentation module and an order form on which the user should indicate the modules he wishes to include in his copy of USERBOOK.

It is hoped that the revised modular USERBOOK will better fulfill our user's documentation needs by significantly reducing the volume and frequency of updates required by any given subscriber.

Janet Campbell

ADVISORY COMMITTEE ON COMPUTER PLANNING AND POLICY DISTRIBUTES RELEASE

The Advisory Committee on Computer Policy and Planning has, in consultation with the University Solicitors, developed a 'release' to be used by individuals who are making computer programs available free of charge to other persons or organizations. The committee learned that both the individual supplying a copy of a program, and the university, might be liable if the recipient subsequently caused damage by using the program. A classic example of this is the collapse of a bridge constructed by the recipient of a free structures program.

Because of the growing number of suits in this field, the committee recommends that a copy of the 'release' be sent to any individual to whom you intend to send a copy of a computer program or software. The release pro forma is available from the Office of Research Administration or other administrative offices.

Stan Yagi

ACM CONFERENCE

As was mentioned in last month's COMPUTERNEWS, the Second Annual Conference on User Services in College and University Computing Centres was held in Toronto, September 22-25. The conference was attended by representatives from computer installations throughout Canada and the United States and explored the theme of how User Services groups can HELP USERS HELP THEMSELVES.

Although the conference sessions included a wide variety of topics ranging from "Services for Non-Programming Users" to "Vendor Assistance for User Services ", three main problem areas were identified and formed a common denominator for most discussions. Briefly, these problem areas were defined as: identification of the users and the users' needs, communication techniques and the tools necessary to assist users in becoming more informed and self-sufficient.

The problem of identifying the users and the users' needs has been dealt with in a variety of ways by different installations. The University of Texas at Austin approaches this problem in two ways. First, they identify the users and what programming languages, packages etc. they are using by performing information searches on a global dayfile or System file. In addition, user profiles are developed in each University department by interviewing deans, directors, professors, students, etc. The interview notes are circulated among Computer Centre staff and are then condensed into profiles to be included in the Centre's Newsletter.

cont'd...

ACM CONFERENCE Cont'd

Computer-generated user profiles are used by several installations to provide a database which can be interrogated in an "ad hoc" manner. Cross-tabulating the data produced results in data with a wider range of applications. Both the Virginia Polytechnic Institute and State University and Stanford University have been using computer-generated profiles for some time and both emphasized the importance of doing user contact follow-ups on the information obtained from the profiles.

Discussion of the problem of user communication included special communication techniques required for Remote and Non-programming users. Lister Hill National Centre for Biomedical Communications, National Library of Medicine dealt with the problem of interfacing a large number of naive computer users (i.e. users who need help at very basic level) with a sophisticated computerized teaching program. Many of the users at this installation are medical students whose use of, and interest in, the computer is restricted to using the computer as a teaching resource aid. The problems and solutions described were often hilarious but were also very informative. The medical students use terminals to access the system and hardcopy terminals have proven more popular than CRT terminals as the students can retain printed output for future reference. Printing speed was established at 300 baud as users tend to over-read at 100 baud. It was found that for psychological reasons, a response time that is too fast is almost as bad as one that is too slow. Keyboard manipulation has to be kept simple because most users cannot handle the keyboard quickly and the typing actually becomes an impediment in the interchange. One solution to this problem was the introduction of multiple choice questions which require a one key response. In summary, the advice was, keep it simple.

The third problem area, that of providing the tools necessary to assist users in becoming more informed and self-sufficient, dealt with user education programs, documentation, documentaion distribution, canned programs, advising and contract programming services and the advantages and problems associated with each. The presentaion by the Uni-Coll Corporation described some of the technical problems inherent in the conventional tools provided for users. Canned programs are easy to use but by their very nature are not flexible. Interactive computer aided instruction is useful but limited, as only a finite number of paths are available through a CAI program. The CAI user is being told facts, rather than exploring the various concepts of the particular course he is taking. Contract programming is a tool available only to users with a budget capable of absorbing the cost of such a service and is further restricted to those users who can define their objectives and articulate their needs. Michigan State University is reviewing some unusual tools, including the establishment of an apprenticeship system where novice users are assigned to a faculty member who has experience in both computing and the discipline being studied.

cont'd...

ACM CONFERENCE Cont'd.

In summary, the ACM Conference provided an opportunity for staff members from Computer Centres throughout North America to compare and discuss alternate solutions to the problems and challenges facing User Services groups in their attempt to Help the Users Help Themselves.

Stan Yagi

The following article is reprinted from the SIGUCC Newsletter, September, 1974, Volume 4 - Number 2.

COMPUTER SCIENCE CONFERENCE 75 CALL FOR PAPERS

The third annual Computer Science Conference will be held in Washington, D.C., at the Statler-Hilton Hotel on February 18 - 20, 1975. William F. Atchison, Chairman, ACM Education Board, is the conference chairman. An invitation for reports of current research in the computer information sciences appears in the May Communications. Abstracts only are requested by December 1, 1974. The original and three duplicates should be sent to William F. Atchison, Computer Science Conference 75, Department of Computer Science, University of Maryland, College Park, MD 20742, U.S.A.

EMPLOYMENT REGISTER

An Employment Register will be available as part of the Computer Science Conference to be held in Washington, D.C., February 18 - 20, 1975. The conference is sponsored by the Association for Computing Machinery, the Computer Science Departments of many universities and a number of industrial organizations. An announcement from the Department of Computer Science, University of Pittsburg, describing the Register and providing an Employment Register Request form, appears as a supplement at the end of this issue of COMPUTERNEWS. Anyone interested in obtaining further information about the Employment Register, should see this supplement.

Janet Campbell

MORE COURSES

In last month's COMPUTERNEWS, it was announced that UTCC would attempt to set up an Introduction to JCL course at Scarborough College. This has now been confirmed.

Dates: Nov. 25, 27, 29 and Dec. 2 and 4
Time: 4 - 5 p.m.
Location: Scarborough R-3705
Instructor: R. Lombardi

Job Control Language is the programmer's means of giving instructions and information to the Operating System. Through JCL,

cont'd...

MORE COURSES

Cont'd.

requests are made (e.g. memory allocation), information is given to the system (e.g. accounting and class information) and datasets are manipulated. This course is intended to present the basic statements of JCL and explain their uses. The student will be expected to test what he learns by using JCL to access and manipulate datasets placed on the system by the instructor.

Many users may already be aware that S/370 Services will be implementing VS2 Release 2 in the near future. UTCC will be offering a two hour course which will cover the differences and enhancements in VS that are available to the GPJS user. As virtually every job currently running can execute "as is" under VS, the major emphasis in this course will be on the enhancements available in VS.

The course will cover the following items:

1. Expanded Job Control efficiency through the use of two new /* control cards: the /*JOBPARM and the /*OUTPUT statements.
2. Differences and expansion in VS JCL.
3. Differences in the IBM utilities.
4. Differences in the Linkage Editor that allow the user greater freedom.

The course will be given by H. Kugel and I. Darwin in the Sandford Fleming Building on three seperate occasions.

Nov. 12	6 - 8 p.m.	SF136
Nov. 26	6 - 8 p.m.	SF136
Dec. 5	2 - 4 p.m.	SF126

Don Gibson

SAVE A TREE -- HELP UTCC RECYCLE

During the past year, the demand for, and the price of, paper pulp has increased dramatically. The Computer Centre has not been isolated from these rising costs. Last year natural FORTRAN cards cost $1.12 per thousand. UTCC is now paying $2.45 for the same amount of cards. The cost of paper has increased from $3.82 per 1,000 sheets to $7.50 and costs are expected to increase in April when contracts are renegotiated.

Last year UTCC placed orders for over 30,000,000 cards and over 25,000,000 sheets of paper. Consumption is expected to increase at least 10-15% this year. It is clear that UTCC must pass some of these increased costs along to users. The user can help to reduce the increase by doing the following:

1. Wait a few minutes before pressing Stop and Carriage Restore on the printer. Advancing the printer manually results in a wastage of three to four pages of paper.

cont'd...

HELP UTCC RECYCLE

Cont'd.

2. Use the reverse side of printouts from 2741 terminals.
3. Use keypunches and cards carefully.

UTCC may replace its 11" x 15", 6 lines per inch paper which is now standard with 8 1/2" x 15" paper (8 lines per inch). This would result in a 25% saving in paper consumption.

Cards are easier to recycle than paper and are considerably more valuable -- $150 per ton for cards, $100 per ton for paper.

UTCC needs your help in the fight to keep down rising paper costs. UTCC's attempts to design a recycling box which will attract attention and encourage use have proven unsuccessful. UTCC invites the users to try their hand at designing a more successful model. Please submit recycle box designs or any other conservation suggestions to Mark Tapia, Sir Sandford Fleming Laboratories, room 114, 928-7108.

Mark Tapia

PERSONNEL CHANGES

Leaving the Centre this month are Dorothy McCurdy of System/370 Operations and Bob Schulte of System/370 Software Development. Good Luck in your new endeavours.

Trudy Holland

RECENT ACQUISITIONS IN THE DEPARTMENT OF COMPUTER SCIENCE LIBRARY

ACM Symposium on Principles of Programming Languages, Boston, 1973.
Conference Record.
New York, ACM, 1973.

Brainerd, Walter S. and Landweber, L.H.
Theory of Computation.
New York, Wiley, 1974.

Clinic on Library Applications of Data Processing.
Proceedings.
Urbana, University of Illinois, 1973.

The International Directory of Computer and Information System Services. 3d ed.
London, Europa Publications, 1974.

Kernighan, Brian W. and Plauger, P.J.
The Elements of Programming Style.
New York, McGraw-Hill, 1974.

Meyers, Edmund D.
Time-sharing Computation in the Social Sciences.
Englewood Cliffs, N.J., 1973.

Pakin, Sandra, et al.
APL: A Short Course.
Englewood Cliffs, N.J., Prentice-Hall, 1973.

Shaw, Alan C.
The Logical Design of Operating Systems.
Englewood Cliffs, N.J., Prentice-Hall, 1974.

cont'd...

RECENT ACQUISITIONS Cont'd.

United Nations. Dept. of Economic and Social Affairs.
The Applications of Computer Technology for Development: Second Report of The Secretary-General.
New York, 1973.

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https://archive.org/details/computernewsocto117jane

CHANGES IN HOURS OF SERVICE

S/370 Services users are advised of the following new hours of service:

GPJS

On October 23, 1974 S/370 Services test time was extended one hour in order to accomodate VS2 testing. Therefore, the following hours of service are now in effect for GPJS S/370 Services users and will remain in effect until further notice:

Monday - Friday	1 a.m. - 6 a.m.
	8 a.m. - 10 p.m.

GPJS and HSJS

1. Effective November 9, 1974 the following new weekend hours of service will apply to all S/370 users until further notice:

   Saturday and Sunday
   10 a.m. - 6 p.m.

2. Historically, UTCC has offered extended hours of service (9 a.m. - 9 p.m. Saturdays and Sundays) during the peak usage periods. However, due to budget constraints, extended hours of service will not be scheduled during the 1974-75 school term.

Janet Campbell

NEW EDITION OF THE EISPACK MATRIX PACKAGE RELEASED, WITH INCREASED CAPABILITIES

The 4th edition of EISPACK has been released from Argonne National Laboratories. EISPACK 4 contains 58 FORTRAN subroutines which solve problems in numerical linear algebra. 55 programs deal with the algebraic eigenvalue problem, while 3 handle linear equations with bandsymmetric and rectangular matrices. The subprograms have been tested extensively and represent the 'state of the art' in eigenanalysis. An orientation to the whole package, with emphasis especially on the new 19 subroutines, will be given by Mr. Imre Farkas, Department of Computer Science, in room 222 in the Sandford Fleming Building at 3 p.m. on Tuesday, November 19, 1974.

Users are advised to see Mr. Farkas, room 1208, McLennan Laboratories, 928-8747, about their eigenproblems in order that their experiences can be directed back to Argonne.

Imre Farkas

PROGRAMMING UNDER VS

The purpose of this article is to provide ideas that will enable the user to get the most out of the new Virtual Storage system which will be implemented at UTCC.

cont'd...

PROGRAMMING UNDER VS Cont'd.

It should be kept in mind that the purpose of VS is to make the user's life easier. To this end, it should be stressed that almost any user job now running can be executed "as is", without any change. Before a user begins to change a running program to get "the best" out of VS, he should take into consideration how often the program will be run and how much time he wants to put into "optimizing" it. Such things as backup, in the event of inadvertent damage to a routine or program, and fall back, in the event of the failure of a major change, should also be considered.

For programs that are now being designed, the above does not apply and the user need only consider the remainder of the article which will deal primarily with programming techniques and which will range from JCL to the program itself.

In the past, under OS/MVT the user had to worry about a fixed region size. In the case of large programs this was often dealt with by using smaller buffers for datasets. This, in turn, would cause an increase in input/output commands and, hence, slower throughput and greater input/output charges.

With VS2, the user has, essentially, all the memory he needs. Thus, one safe and painless way of getting the best out of VS is to increase blocksizes to optimize disk space usage and to cut down I/O charges.

It might be advisable for the user to experiment first with JCL in order to get the feel of what he is doing and from there, go on to work with the program itself.

There are other things a user can do with the VS2 Job Control Language. Take for example, the OUTLIM parameter on the DD statement which is used to limit the logical number of records written into a dataset. It can be used as a form of insurance to cut down the cost and waste of program loops. It can also be used to shorten or truncate the printing of an Abend Core Dump. Thus, in a very large program, the user can dump as far as the Save Area trace and know which one of his routines died. In this way the printing of a thick hexadecimal core dump is often avoided.

There is still more that can be done with the DD statement. The DEST parameter can be used to route specific datasets to specific remote terminals and the FREE parameter can be used to "spin off" and print a dataset while the program that created the dataset is still running. This can be very useful. Suppose a user has a long running program that generates 20,000 lines of output. If he can split his output into two datasets of 10,000 lines each, one of his datasets can be printing while the other dataset is still being built by the running program. Also, since each dataset will be treated as a separate job by the system, each printout is eligible for self-service printer service at the Sandford Fleming Terminal. Hence, the user gets his output back that much sooner.

cont'd...

PROGRAMMING UNDER VS Cont'd.

The actual writing or recoding of programs that will enable the user to get the best from VS, requires thought. The name of the game is to reduce page faults, i.e. requests to the system to bring in parts of a program from external storage. Basically, this can be done by trying to do two things:

1. Keep the items that are used with each other near each other. This is called 'locality of reference' in IBMese.
2. Don't reference data you won't use. This is called 'validity of reference' in IBMese.

You can work toward these by:

a. Making error handling, special purpose or unusal case routines into separate subroutines. Get them out of the main program logic flow, especially if they are long.

b. Include a short subprogram that is not often used, in the main program rather than calling it. This will take more Virtual Storage but less real storage. Therefore, less page swaps will be needed. In Assembly language, use MACROS as often as possible.

c. Understand the logic flow in your program. Link Edit your load module so that the routines that call each other are near each other. This can be done with the ORDER statement in the VS Linkage Editor; otherwise the Linkage Editor reserves the right to arrange your subroutines as it sees fit.

d. Initialize data as close as possible to its actual use. This will increase the odds that the page containing the data will still be in real storage when it is referenced.

e. Place any new or generated data item as close as possible to the items that will use it. If possible, do not scatter your data.

f. Reference arrays in the order in which they are placed in storage. In the case of FORTRAN, use column-wise rather than row-wise reference. If possible, define arrays in the order they will be referenced. Look very closely at COMMON statements.

The above might seem obvious to some users, but there is considerable effort involved if the user wants to go 'all the way' toward optimization.

But it can be worth it and sometimes it can even be fun! Any questions about the above should be directed to Herb Kugel at 928-7286.

Herb Kugel

VS2 MANUALS

A complete set of IBM VS2 Release 2 manuals is available for reference in the Technical Reference Centre, Sandford Fleming Building, room 128.

The following is a selection of the more widely used manuals which are currently in stock in the Information Office:

GR20-4260
Introduction to Virtual Storage

GC28-0661
Introduction to VS2, Release 2

GC28-0667
Planning Guide for VS2

GC33-4010
OS/VS Assembler Language

GC33-4021
OS/VS Assembler Programmer's Guide

GC26-3836
OS/VS Access Method Services

GC26-3793
OS/VS Data Management Macro Instructions

GC26-3783
OS/VS Data Management Services Guide

GC26-3813
OS/VS Linkage Editor and Loader

GC38-1007
OS/VS Linkage Editor and Loader Messages

GC35-0005
OS/VS2 Utilities

GC38-1005
OS/VS2 Utilities Messages

GC28-0692
OS/VS2 JCL

GC28-0683
OS/VS2 Supervisor Services and Macro Instructions

GC28-0646
OS/VS2 TSO Command Language Reference

GX28-0647
OS/VS2 TSO Command Language Reference Handbook

GC28-0645
OS/VS2 TSO Terminal User's Guide

GC38-1008
OS/VS2 System Codes

GC38-1002
OS/VS2 System Messages

GC28-0632
OS/VS2 Debugging Handbook

GC28-0671
OS/VS2 Release Guide

GC26-3799
OS/VS VSAM Planning Guide

GC26-3819
OS/VS VSAM for Advanced Applications

GC26-3838
OS/VS VSAM Programmer's Guide

GC35-0010
OS/VS OS CVOL Support

cont'd...

VS2 MANUALS

Cont'd.

GC26-3795
OS/VS2 Tape Labels

GC28-0674
OS/VS2 Service Aids

These manuals are available to users at a nominal charge. VS2 manuals not listed may be ordered by filling out an order form at the Information Office, room 128, Sandford Fleming Building, phone 928-4990 or 4991.

Reference copies of VS2 manuals will be available at each of the batch terminals by December 1, 1974.

Marg Doherty

UTTIME: A REMINDER

Current, or prospective users of UTTIME, the UTCC subroutine which is used to time sections of user programs, are again reminded that the OS version will not work in the VS system.

UTCC is currently working on a VS version. If you are planning to use, or are now using, UTTIME, please call Herb Kugel at 928-7286.

Herb Kugel

TSO TOPICS

1. 300 Baud Terminal Support

For some time S/370 Services has been working on implementing 300 Baud (30 characters-per-second) ASCII terminal support for TSO. There are now eight lines available for users, on a first-come, first-service basis. The telephone number is 928-7386. All switch settings on the terminal will remain the same as before, except for the transmission speed switch which should be set to 300 Baud or 30 CPS. A few terminals have a separate "receive rate" switch. This should be set to 300 Baud. Users interested in using 300 Baud should provide Ian Darwin (928-7318) with their name, phone number, userid and terminal make and model. This will help UTCC to estimate how many lines will be required in the future. Any problems with the terminal support for TSO should be directed to Ian Darwin at the above number.

2. New Edit Command

In response to several user suggestions, an EDIT command which displays the name of the dataset from which the user edited (i.e. the DSNAME on the EDIT command) has been implemented. This is primarily useful for users with CRT terminals without hardcopy in which the EDIT command as entered has "rolled off" the top of the screen during the EDIT session. The subcommand is called WHATDS or WD and has no operands. An example would be:

cont'd...

TSO TOPICS Cont'd.

```
edit  bc(def)cn
EDIT
...
...    changes
...
wd
TS12345.BC.CNTL(DEF)
S
SAVED
end
READY
```

Suggestions for further enhancements are welcome. Send them to Ian Darwin, room 116, Sir Sandford Fleming Laboratories, 10 King's College Road, Toronto, M5S 1A1 or call 928-7318.

Ian Darwin

HSJS MONTHLY STATISTICS

During the month of September, 1974, 98,095 jobs were processed compared with 92,522 for the previous year, an increase of 6%.

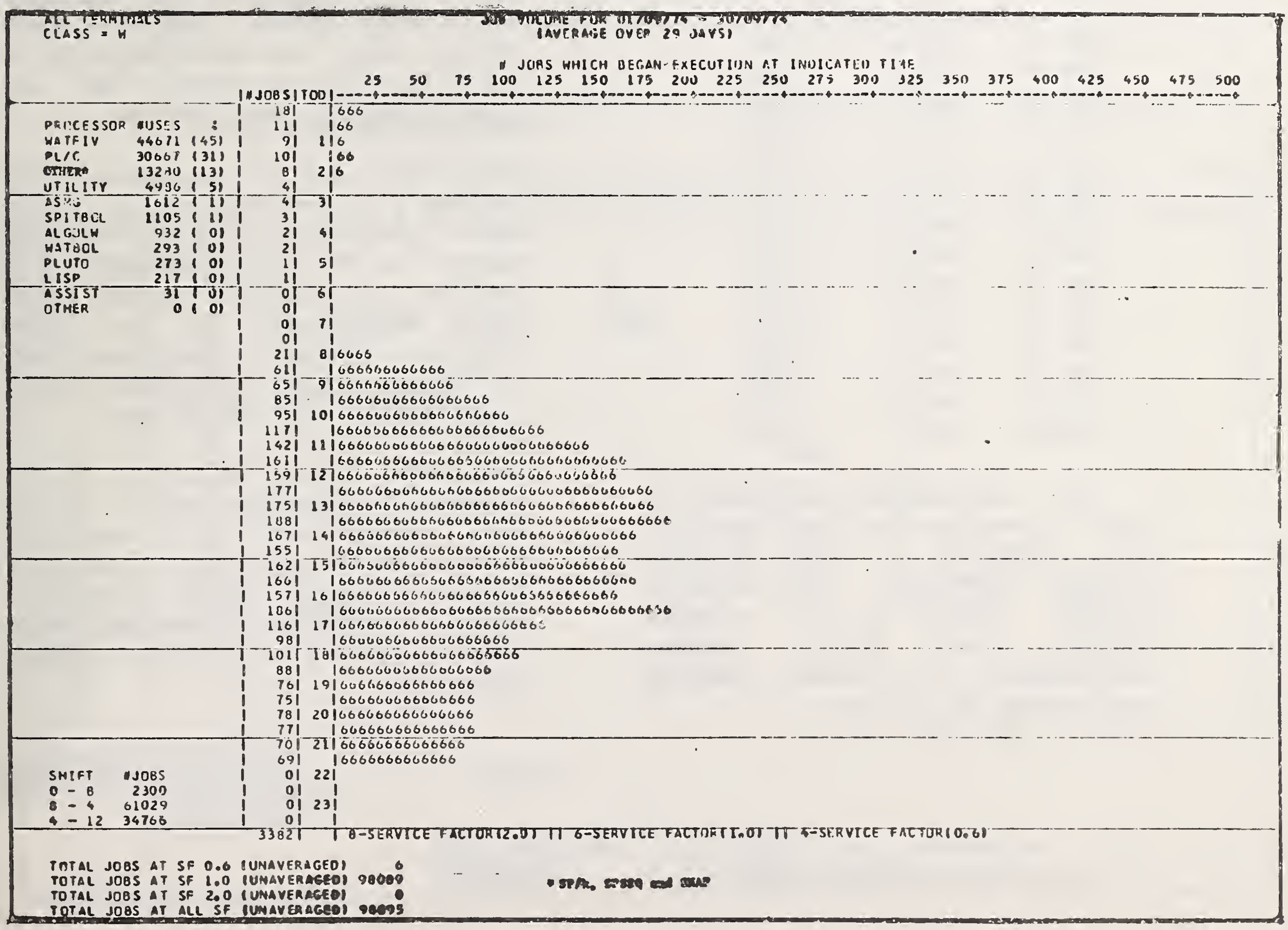
The following charts summarize the HSJS activity for the month of September. The graph represents the average number of jobs processed during each half hour period of the day.

Mark Tapia

```
RESOURCE_USAGE_BY_PROCESSOR

                                  ||            TOTAL PER PROCESSOR           ||        AVERAGE PER USE          |
                                  ||   CPU    |  #CARDS   |     #LINES        ||  CPU   |#CARDS   |  #LINES      |
PROCESSOR | #USES  %TOTAL||  (MIN)    |   READ    |     PRINTED       || (MIN)  | READ    |  PRINTED     |
---------------------------------------------------------------------------------------------------------
WATFIV    | 44671   (46)  ||  468.18  |  6155470  |     6731080       || 0.008  |  136    |     148      |
PL/C      | 30667   (31)  ||  385.05  |  1299381  |     4486695       || 0.012  |   40    |     144      |
OTHER*    | 13280   (14)  ||   75.32  |   298778  |      802789       || 0.004  |   20    |      60      |
UTILITY   |  4986   ( 5)  ||   11.49  |   431437  |      627457       || 0.000  |   84    |     124      |
ASMG      |  1612   ( 2)  ||   21.87  |   227520  |      385961       || 0.012  |  140    |     236      |
SPITBOL   |  1105   ( 1)  ||   12.58  |   249522  |      237030       || 0.008  |  224    |     212      |
ALGOLW    |   932   ( 1)  ||   25.49  |   224741  |      188368       || 0.027  |  240    |     200      |
WATBOL    |   293   ( 0)  ||    2.91  |    64281  |       46194       || 0.008  |  216    |     156      |
PLUTO     |   273   ( 0)  ||    2.72  |    30209  |       54200       || 0.008  |  108    |     196      |
LISP      |   217   ( 0)  ||    5.34  |    22995  |       33205       || 0.023  |  104    |     152      |
ASSIST    |    31   ( 0)  ||    0.08  |     1197  |        2701       || 0.000  |   36    |      84      |
SIMON     |    28   ( 0)  ||    0.08  |     1038  |        1522       || 0.000  |   36    |      52      |
---------------------------------------------------------------------------------------------------------
TOTAL        98095        || 1011.12  |  9006569  |    13597202       || 0.010  |   91    |     138      |

* SP/k, SPSSQ and SNAP
```



```
ALL TERMINALS                                          JOB VOLUME FOR 01/09/74 - 30/09/74
CLASS = W                                                   (AVERAGE OVER 29 DAYS)

                                                  # JOBS WHICH BEGAN-EXECUTION AT INDICATED TIME
                                    25   50   75  100  125  150  175  200  225  250  275  300  325  350  375  400  425  450  475  500
                        |#JOBS|TOD|----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+
------------------------|   18|   |666
PROCESSOR #USES   %     |   11|   |66
WATFIV    44671 (45)    |    9|  1|6
PL/C      30667 (31)    |   10|   |66
OTHER*    13280 (13)    |    8|  2|6
UTILITY    4986 ( 5)    |    4|   |
------------------------|-----|---|-------------------------------------------------------------------------------------------------
ASMG       1612 ( 1)    |    4|  3|
SPITBOL    1105 ( 1)    |    3|   |
ALGOLW      932 ( 0)    |    2|  4|
WATBOL      293 ( 0)    |    2|   |
PLUTO       273 ( 0)    |    1|  5|
LISP        217 ( 0)    |    1|   |
------------------------|-----|---|-------------------------------------------------------------------------------------------------
ASSIST       31 ( 0)    |    0|  6|
OTHER         0 ( 0)    |    0|   |
                        |    0|  7|
                        |    0|   |
                        |   21|  8|6666
                        |   61|   |666666666666
------------------------|-----|---|-------------------------------------------------------------------------------------------------
                        |   65|  9|6666666666666
                        |   85|   |66666666666666666
                        |   95| 10|6666666666666666666
                        |  117|   |66666666666666666666666
                        |  142| 11|6666666666666666666666666666
                        |  161|   |66666666666666666666666666666666
------------------------|-----|---|-------------------------------------------------------------------------------------------------
                        |  159| 12|6666666666666666666666666666666
                        |  177|   |66666666666666666666666666666666666
                        |  175| 13|66666666666666666666666666666666666
                        |  188|   |6666666666666666666666666666666666666
                        |  167| 14|666666666666666666666666666666666
                        |  155|   |6666666666666666666666666666666
------------------------|-----|---|-------------------------------------------------------------------------------------------------
                        |  162| 15|66666666666666666666666666666666
                        |  166|   |666666666666666666666666666666666
                        |  157| 16|6666666666666666666666666666666
                        |  186|   |6666666666666666666666666666666666666
                        |  116| 17|66666666666666666666666
                        |   98|   |6666666666666666666
------------------------|-----|---|-------------------------------------------------------------------------------------------------
                        |  101| 18|66666666666666666666
                        |   88|   |66666666666666666
                        |   76| 19|666666666666666
                        |   75|   |666666666666666
                        |   78| 20|666666666666666
                        |   77|   |666666666666666
------------------------|-----|---|-------------------------------------------------------------------------------------------------
                        |   70| 21|66666666666666
                        |   69|   |6666666666666
SHIFT    #JOBS          |    0| 22|
0 - 8     2300          |    0|   |
8 - 4    61029          |    0| 23|
4 - 12   34766          |    0|   |
------------------------------------------------------------------------------------------------------------------------------------
                         3382|    | 8-SERVICE FACTOR(2.0) || 6-SERVICE FACTOR(1.0) || 4-SERVICE FACTOR(0.6)

TOTAL JOBS AT SF 0.6 (UNAVERAGED)      6
TOTAL JOBS AT SF 1.0 (UNAVERAGED)  98089                        * SP/k, SPSSQ and SNAP
TOTAL JOBS AT SF 2.0 (UNAVERAGED)      0
TOTAL JOBS AT ALL SF (UNAVERAGED)  98095
```

S/370 RELIABILITY

There was a sharp decline in system reliability for September which can be directly attributed to the numerous hardware problems that were experienced during the month. In all, a total of 1301 minutes of system downtime was attributed to hardware failures. For September, the uptime percentage was 94.5 while the average number of IPL's per day was 1.83. The scheduled hours of production for September totalled 412.

MONTHLY COMPARATIVE FIGURES

MONTH	% UPTIME	UNSCHED. IPL's/DAY
SEP 73	86.8	3.63
OCT 73	95.6	1.83
NOV 73	98.1	0.93
DEC 73	98.6	0.62
JAN 74	97.0	1.37
FEB 74	98.3	1.25
MAR 74	98.7	1.06
APR 74	99.3	0.52
MAY 74	99.2	0.87
JUN 74	96.1	0.75
JUL 74	91.7	1.66
AUG 74	98.3	0.86
SEP 74	94.5	1.83

The percentage breakdown of total system downtime for September was: HARDWARE - 1301 minutes (84.5%); SOFTWARE - 118 minutes (7.6%); OTHERS - 122 minutes (7.9%). The major events contributing to these downtime totals were as follows:

September 14,23,27,28,30: A total of 375 minutes of downtime and 17 IPL's were attributed to storage errors in the Itel memory units which caused hard machine failures. Itel corrective maintenance was required to replace memory cards for each occurrence.

September 3,30: A total of 60 minutes of downtime and 2 IPL's were attributed to a faulty 3330 Itel disk drive. Itel maintenance was required to replace a faulty card in the disk unit.

September 4,5,6: A total of 211 minutes of downtime and 4 IPL's were attributed to numerous hardware errors associated with the 6250 b.p.i. upgrade on the 3400 b.p.i. tape drives. The 6250 tape drives were non-operational for a total 2100 minutes before IBM was able to rectify the problems.

September 6,8,9,10: A total of 521 minutes of downtime and 5 IPL's were attributed to a hardware failure in the 2301 drum unit. The problem was finally traced to a badly seated pin in the 2860 selector channel. Total downtime, in which the drum was non-operational, was 2220 minutes.

September 5,30: A total of 120 minutes of downtime and 3 IPL's were attributed to a software problem in the Gould error handing routines causing 100% supervisor loops. Assurance is awaiting Gould source listing in order to isolate the error.

Dave Rauch

```
                    DOWNTIME_REPORT_OF___S/370__FOR_SEP_79

-----------------------------------------------------------------------------------------------------------------------------
|                                                  REIPLS(FREQ) // DOWNTIME (MN)                                            |
| DAY  REIPL    DNTIME 0    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100|
=======================+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+|
| S  1     0         0 |                                                                                                    |
| M  2 (CENTER CLOSED) |                                                                                                    |
| T  3     4        50 |□□□□**********************************************                                                  |
| W  4     3        56 |□□□*****************************************************                                            |
| T  5     2       133 |□□********************************************************************************************** 133|
| F  6     1       210 |□*********************************************************************************************** 210|
| S  7     0         0 |                                                                                                    |
| S  8     3       100 |□□□********************************************************************************************* 100|
| M  9     3        91 |□□□****************************************************************************************         |
| T 10     0       260 |************************************************************************************************ 260|
| W 11     0         0 |                                                                                                    |
| T 12     0        12 |************                                                                                        |
| F 13     2        11 |□□*********                                                                                         |
| S 14     1        33 |□********************************                                                                   |
| S 15     0         0 |                                                                                                    |
| M 16     2        13 |□□***********                                                                                       |
| T 17     0         0 |                                                                                                    |
| W 18     2        16 |□□**************                                                                                    |
| T 19     1        10 |□*********                                                                                          |
| F 20     0         0 |                                                                                                    |
| S 21     0         0 |                                                                                                    |
| S 22     2        13 |□□***********                                                                                       |
| M 23     9       269 |□□□□□□□□□*************************************************************************************** 269|
| T 24     3        29 |□□□**************************                                                                       |
| W 25     1         7 |□******                                                                                             |
| T 26     3        27 |□□□************************                                                                         |
| F 27     6        90 |□□□□□□************************************************************************************          |
| S 28     1        21 |□********************                                                                               |
| S 29     0         0 |                                                                                                    |
| M 30     4        90 |□□□□**************************************************************************************          |
-----------------------------------------------------------------------------------------------------------------------------


 LEGEND      : ONE □  =ONE REIPL
               ONE *  =ONE MINUTE OF DOWNTIME
```

```
                         _S/370__DOWNTIMES_DURING_SEP_79

----------------------------------------------------------------------------------------------------------------------------
|                                                  TIME OF DAY (HOURS)                                                     |
| DAY    RELOADS  DNTIME  0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24|
==========================+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+|
| S  1         0       0  |                                                                                                |
| M  2  (CENTER CLOSED)   |                                                                                                |
| T  3         4      50  |                                H                 S      SH                           S         |
| W  4         3      56  |                                HI                           UH H      S                        |
| T  5         2     133  |                                HHHHHS              HH         SS                               |
| F  6         1     210  |HHHHHHHHHHI H                   HHHH                                                            |
| S  7         0       0  |                                                                                                |
| S  8         3     100  |                                    IIH     H  HHHH                                             |
| M  9         3      91  |HHH    H          HH                HH                                                          |
| T 10         0     260  |HHHHHHHHHHHHHHHHHI                                                                              |
| W 11         0       0  |                                                                                                |
| T 12         0      12  |                                H                                                               |
| F 13         2      11  |                                                                       S    S                   |
| S 14         1      33  |                                                  HHH                                           |
| S 15         0       0  |                                                                                                |
| M 16         2      13  |                                       S                            S                           |
| T 17         0       0  |                                                                                                |
| W 18         2      16  |                                                                                      O         |
| T 19         1      10  |                                              H                                                 |
| F 20         0       0  |                                                                                                |
| S 21         0       0  |                                                                                                |
| S 22         2      13  |                                                 S         H                                    |
| M 23         9     269  |HHHHHHHHH             H               H                    H H   H    H     HHH HH     H        |
| T 24         3      29  |         H    H                       H                                                         |
| W 25         1       7  |                                                          H                                     |
| T 26         3      27  |                                                           S    H             S                 |
| F 27         6      90  |                                I      HHH         H     H H    H         H                     |
| S 28         1      21  |                                    I        H                                                  |
| S 29         0       0  |                                                                                                |
| M 30         4      90  |H       S                              S                         HHH               H            |
----------------------------------------------------------------------------------------------------------------------------
LEGEND :        H FOR HARDWARE
                S FOR SOFTWARE                      STATISTICS
                O FOR OPERATIONAL
                U FOR UNEXPLAINED
                I FOR LATE IPL
                                              TOTAL SCHEDULED HOURS OF PRODUCTION :  471
                                              TOTAL DOWNTIME (MN)   : 1541 , AVG/DAY :  53.14 , AVG/PROD HOUR :   1.58
                                              TOTAL REIPL'S         :   53 , AVG/DAY :   1.83
                                              DOWNTIME RATE IS      :  5.46 PERCENT OF SCHEDULED PRODUCTION HOURS
```

INTERACTIVE SYSTEMS RELIABILITY

The uptimes achieved for the month of September for each of APL, ATS, and CPS were 98.62%, 98.62% and 98.57% of scheduled operation, respectively. The scheduled hours of operation during the month of September totalled 458.5, while the number of unscheduled IPL's per day was 0.13. In addition to the scheduled time, APL, ATS and CPS were also available for approximately 130 hours of unattended weekend operation.

On September 23, storage checks and channel errors resulted in 238 minutes of downtime. The first problem was caused by a bad array in (LCS) processor storage. The array was replaced and subsequent voltage adjustments were also performed. The second problem was connected with the 2821 control unit where a suspected card was replaced.

The percentage breakdown of total system downtime was: HARDWARE - 362 minutes (92.35%), SOFTWARE - 18 minutes (4.59%), OTHER - 12 minutes (3.06%). Three unscheduled IPL's were required as a result of the failures.

Kam Jain

DATE	DOWNTIME (mins)			REASON
	APL	ATS	CPS	
Mon. Sept. 9	9	10	12	*Channel switch disabled (OPERATIONAL)
Thu. Sept. 19	16	12	18	*File subsystem restored from previous day (SOFTWARE)
Fri. Sept. 20	20	21	24	Late IPL due to IBM Maintenance on 2711
Mon. Sept. 23	312	314	315	Late IPL, Storage Checks (HARDWARE)
"	20	22	23	*Channel Error (HARDWARE)
Total	377	379	392	*IPL Required

System Failures September 1 to September 30, 1974

DATATALK DIALOGUES

In recent months, DATATALK has been featuring dialogues which have been drawn, as much as possible, from actual DATATALK experiences with conversational computing. Your dialogue may not have been among them. But that doesn't mean it wasn't interesting. All DATATALK conversations are interesting. Call us and see.

DIALOGUE: ALL'S WELL THAT ENDS SMOOTH

D: DATATALK services, Ernst Goetze speaking.
C: Hello, DATATALK? I have ten points that I think should fit a line. I'm curious about the value at plus infinity.
D: You mean, the value plus infinity or minus infinity?
C: No. The points are 0.74 0.87 0.91 0.933 0.947 0.96 0.963 0.97 0.973 0.976....O.K.?
D: Yes.
C: Now, take the logarithm and take the points 1, 1/2, 1/3,..., 1/10 as the x-values.
C: Can you fit a line?
D: Yes. The mean squared error is less than 10*-5, R*2 is 0.999994.
C; Aha....I thought so. What's the intercept?
D: 0.00781
C: No, I mean what's the exponential of the intercept?
D: 1.00784. Therefore, the line is Y = 1.00784 EXP(-0.3063 X)
C: O.K. fine, thank you. I was really only interested though in the intercept. That is the constant factor, when X=1/N, N tending to infinity. Just to check, would you tabulate the calculated values and send them along to me?
D: Yes sir. Thanks for calling...bye bye.

Ernst Goetze

DATATALK AND APL

Don't forget (COMPUTERNEWS, September) that DATATALK programmers and operators are a ready source of information and advice on programming in APL and are also a good source of information on the UTCC implementation of APL*PLUS.

DATATALK AND APL Cont'd.

DATATALK has also been developing applications software for APL for the use of DATATALK services. There are more to come, but here are three functions saved into 1228 DATATALK that might be of interest.

Z←E MAX X,	Finds the local extremum by golden section search algorithm of a real single variable function, unimodal in a neighbourhood X, with tolerance E.
E←ORTHO A,	Returns the upper triangular (possibly singular) matrix E that will orthogonalize the column vectors in the real matrix A, AE=U, where U is orthogonal, except for perhaps some zero columns, rank A = RANK U.
Z←GAUSS Q,	Does a numerical integration by Gaussian Quadrature over 5, 12 or 24 interpolation points (defaults to 12) on an interval Q.

These programs are, of course, not conversational. Call 928-6710 from 10 a.m. - 10 p.m. any weekday for advice on syntax and usage.

MAX, ORTHO, GAUSS and many more functions are the result of DATATALK programming. They offer better solutions to the problems that are being solved by conversational computing.

DATATALK is also developing applications software for APL in areas that are not within the scope of DATATALK services at the present time. Suggestions for algorithms that you feel should be implemented and made available in APL are welcome. DATATALK will do the programming eventually!

Users with questions or comments about the above should call 928-6710 or write to Ernst Goetze, Room 1207, Burton Tower, University of Toronto, St. George Campus.

Ernst Goetze

Announcement

EMPLOYMENT REGISTER
ACM Computer Science Conference
Statler Hilton - Washington, D.C.

February 18 - 20, 1975

The Third Annual Computer Science Employment Register will be conducted at the Washington Computer Science Conference. This Register - the only one of its kind - matches computer scientists and data processing specialists with employer opportunities. Previous Registers have attracted thousands of applicants and hundreds of employers from all parts of the United States as well as a number of foreign participants. In the 1973 Register the Eastern States accounted for 40% of the listings, Central States 41%, Western States 15%, and foreign 4%.

The Register operates as follows. The applicant completes a form giving identifying information, education, publications, experience, interests, references, position and salary desired. Provision is made for anonymous listing if desired. The employer completes a similar form giving: identifying information; position available with starting date, salary and benefits; and education, experience, and specialization requirements for the position. An employer may submit several forms - one for each different type of position to be filled. Employers may use this opportunity to list summer positions. These forms are compiled to form the applicant and employer books of listings. Multiple copies of these books will be available at the conference for review. Copies of the books will be available after the conference.

Charges for inclusion in the Register are:

Applicant
- Student: No charge
- Non-student: $5.00
- Anonymous: $5.00 additional charge

Employer
- $15.00 per form submitted

Further information and official forms may be obtained by detaching and mailing the Employment Register Request slip below to:

Orrin E. Taulbee
Computer Science Employment Register
Department of Computer Science
University of Pittsburgh
Pittsburgh, Pennsylvania 15260

* *

EMPLOYMENT REGISTER REQUEST

Name ____

Address ____

____

____

_______ Please send me ______ applicant forms and further information.

_______ Please send me ______ employer forms* and further information.

_______ Please send information on the availability of employer and applicant books after the conference.

*Employers should request one form for each different type of position available.

UTCC DIRECTORY

	ROOM	PHONE 928-
DIRECTOR		
John C. Wilson	49 St.Geo	6496
ASSOCIATE DIRECTOR		
Al Heyworth	49 St.Geo	4936
ASSOCIATE DIRECTOR		
Dave McNaughton	SF143	6281
CONTRACT PROGRAMMING		
Bill Greene	SF214C	2694
INFORMATION OFFICE		
General Inquiries	SF128	4990 or 4991
Don Gibson	SF128A	5568
ADMINISTRATION MANAGER		
Anthony Pieterse	SF137	8948
AUTHORIZATION CLERKS		
Yvonne Bowen (Interactive)	49 St.Geo	8703
Barbara Ablett (GPJS, TSO)	SF115	5557
Krishna Patnaik (CRF)	SF207	8853
Edith Kovacs (7094)	NP1207	7094
S/370 SERVICES		
MANAGER, S/370 SERVICES		
Stan Yagi	SF113	7331
MANAGER, S/370 OPERATIONS		
Derry Cox	SF113	7092
MANAGER, S/370 SOFTWARE		
Rein Mikkor	SF113	5058
SYSTEM HARDWARE SUPERVISOR		
Eugene Siciunas	SF114	4967
PROGRAM ADVISERS	SF117	8599
INTERACTIVE TERMINAL SYSTEMS		
MANAGER		
Sam Goldfarb	49 St.Geo	3787
CAL COORDINATOR		
Ford Clancy	49 St.Geo	6021
7094 SERVICES		
MANAGER		
Joyce Walton	BT1207	7094
COMPUTER RESEARCH FACILITY		
MANAGER		
Dennis Smith	SF214B	4086

JOB STATUS QUERIES:

SYSTEM/370	7373
7094	7094

INTERACTIVE TERMINAL SYSTEMS:

System Status	6234
APL	7200
ATS	7100
CPS	6200

TSO:

2741 Terminal Malfunctions	7107
2741	7303
TTY	7300

UTCC COMPUTER EQUIPMENT

SYSTEM/370 MODEL 165-II

- located in SF103/105/112
- provides General Purpose Job Stream, High Speed Job Stream and TSO services
- 3072K bytes of memory
- 1 drum
- 12 disk drives (3330)
- 8 disk drives (2314)
- 6 magnetic tape drives (4 9-track and 2 7-track)
- 6 display consoles
- 6 printers
- 5 card readers
- 1 card punch
- 7 remote batch terminals
- 1 paper tape reader
- Calcomp plotters (11" and 30")
- Gould plotter (11")
- OS/MVT with HASP

SYSTEM/360 MODEL 65

- located in McLennan Physical Laboratories
- provides Interactive Systems Service
- 1536K bytes of core
- 16 disk drives (2314)
- 2 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 140 typewriter terminals
- OS/MVT with APL, ATS, and CPS

7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

COMPUTER RESEARCH FACILITY

- located in SF207
- DEC GT44 System with
  - 1 PDP-11/40 CPU
  - 2 9-track dual density tape drives
  - 1 1000 cpm card reader
  - VT17 graphics display unit
  - 1 lab. peripheral system with A/D & D/A
- DEC GT40 System with
  - 1 PDP-11/10 CPU
  - 1 2314 type disk drive
  - 1 VT12 graphic display unit
  - 9-track/800 BPI tape drive
  - 1 Calcomp microfim plotter
- 2 digitizing tablets
- 1 2701 data adapter with RADDTS

CAMPUS DELIVERY

UNIVERSITY OF TORONTO
COMPUTER CENTRE,
TORONTO, CANADA.

DR.J.C.WILSON
DIRECTOR
U T C C
49 ST. GEORGE ST.
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